STATEMENT OF THE CLAIMS

1-29 (cancel)

30. (new) A thin film electrical element including an electrically conductive layer on an electrically insulating substrate, said electrically conductive layer substantially comprising a metal oxide doped with two or more rare earth elements in substantially equal quantities, whereby said thin film electrical heating element is stable at at least one of a power density greater than 10 watts per cm^2 and a temperature greater than 600°C.

31. (new) An element as claimed in claim 30, wherein there are only two rare earth elements.

32. (new) An element as claimed in claim 31, wherein the rare earth elements are cerium and lanthanum.

33. (new) An element as claimed in claim 31, wherein the metal oxide is tin oxide.

34. (new) An element as claimed in claim 31, wherein the conductive layer is doped with substantially equal quantities of donor and acceptor elements.

35. (new) An element as claimed in claim 34, wherein the donor element is antimony and the acceptor element is zinc.

36. (new) An element as claimed in claim 31, wherein the element is stable at a power density in a range between 10 and 20 watts per cm^2.

37. (new) An element as claimed in claim 31, wherein the element is stable at a temperature of 650°C.

38. (new) An element as claimed in claim 31, wherein each rare earth element is present at a concentration up to 5 mol %.

39. (new) An element as claimed in claim 31, wherein each rare earth element is present at a concentration in the range of approximately 1.25 mol % to 3.75 mol %.

40. (new) An element as claimed in claim 31, wherein each rare earth element is present at a concentration of approximately 2.5 mol %.

41. (new) An element as claimed in claim 34, wherein the donor and acceptor elements are each present in a concentration of approximately 2.8 mol %.

42. (new) An element as claimed in claim 30 in which the electrically conductive layer has been annealed for at least one hour at a temperature of at least 600°C.

43. (new) A method of manufacturing a thin film heating element as claimed in claim 30, wherein the metal oxide is deposited on said substrate by pyrolysis of an organometallic base solution containing said two rare earth elements.

44. (new) A method of manufacturing an element as claimed in claim 43, wherein the conductive layer is manufactured in substantially fluorine free conditions.

45. (new) A method of manufacturing an element as claimed in claims 43, wherein the organometallic base solution is monobutyl tin chloride.

46. (new) A method as claimed in claim 45, wherein the base solution includes chlorides of an acceptor element and a donor element in substantially equal quantities.

47. (new) A method as claimed in claim 46, wherein the donor chloride is antimony chloride and the acceptor chloride is zinc chloride.

48. (new) A method as claimed in claim 43, including the step of annealing the electrically conductive layer for at least one hour at a temperature higher than the substrate temperature used during said pyrolysis.

49. (new) A method as claimed in claim 43, wherein the method is carried out in substantially anhydrous conditions.

50. (new) A thin film heating element including an electrically conductive layer on an electrically insulating substrate, said electrically conductive layer substantially comprising a metal oxide doped with two or more rare earth elements in substantially equal quantities, and a donor material and an acceptor material, the donor material and the acceptor material being in substantially equal quantities.